



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/204,706	12/03/1998	RAVIKUMAR RAMACHANDRAN	98-P-7501-US	5853

7590

09/10/2002

The Law Office of Jerome J Norris  
1901 Pennsylvania Avenue Suite 305  
Washington, DC 20006

EXAMINER

OLSEN, ALLAN W

ART UNIT	PAPER NUMBER
----------	--------------

1763

22

DATE MAILED: 09/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/204,706

Applicant(s)

RAMACHANDRAN ET AL.

Examiner

Allan W. Olsen

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 June 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

Claims 13 and 16 are objected to because of the following informalities:

In claim 13, following the phrase "the improvement comprising", "I" should be deleted.

In claim 16, following the phrase "the improvement comprising", "I." should be deleted.

Appropriate correction is required.

### ***Examiner's Note Regarding Claim Interpretation and 35 USC § 112 6<sup>th</sup> Paragraph***

As stated in MPEP 2181:

A claim limitation will be interpreted to invoke 35 U.S.C. 112, sixth paragraph if it meets the following 3-prong analysis:

(A) – the claim limitations must use the phrase "means for " or "step for ";

(B) - the "means for " or "step for " must be modified by functional language;  
and

(C) - the phrase "means for " or "step for " must not be modified by sufficient structure, material or acts for achieving the specified function.

Claim 13 includes a "means for" and two "means to" limitations. These three "means" limitations fail to meet the third prong of the 3-prong analysis because:

step 13a), the function associated with this process step is to strip photoresist. The claim additionally recites "a water only plasma" which constitutes a sufficient act and/or material that may be used to achieve the specified stripping function;

in step 13b), the function of the means is to chemically modify sidewall polymer rails. The claim additionally recites that a mixture of HF and NH<sub>3</sub> is used to accomplish this function;

In step c), the function associated with the means limitation is to remove water soluble material. The claim additionally recites "a deionized water rinse" which is a sufficient act and material to accomplish this function.

The two "means" limitations of claim 16, (i.e. 16 (a) and 16 (b)) fail to meet the third prong of the 3-prong analysis because:

in step a), the function of the means is to form a water soluble material of sidewall polymer rails. The claim additionally recites the sufficient material and act of providing a mixture of HF and NH<sub>3</sub> to achieve the specified function;

in step b), the function of the means is to strip photoresist from a structure. The claim additionally recites the sufficient act of using a chemical downstream etch or plasma to accomplish the function.

### ***Rejection of Apparatus Claims Based Upon Prior Art***

As the instant claims do not invoke 35 U.S.C. 112, sixth paragraph, they are treated solely as apparatus claims. The following rejections of apparatus claims 13-17 are based upon the following guidelines. See MPEP 2114 and 2115.

- Limitations directed to method steps were given little patentable weight.
- Method limitations were considered only to the extent that they provided an indication as to what the claimed apparatus must be capable of performing.

Art Unit: 1763

**MPEP 2114 [R-1] Apparatus and Article Claims - Functional Language**

For a discussion of case law which provides guidance in interpreting the functional portion of means-plus-function limitations see MPEP § 2181 - § 2186.

**APPARATUS CLAIMS MUST BE STRUCTURALLY DISTINGUISHABLE FROM PRIOR ART**

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959).

"[A]pparatus claims cover what a device is, not what a device does." (emphasis in original) Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

**MANNER OF OPERATING THE DEVICE DOES NOT DIFFERENTIATE APPARATUS CLAIM FROM THE PRIOR ART**

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) (The preamble of claim 1 recited that the apparatus was "for mixing flowing developer material" and the body of the claim recited "means for mixing ..., said mixing means being stationary and completely submerged in the developer material". The claim was rejected over a reference which taught all the structural limitations of the claim for the intended use of mixing flowing developer. However, the mixer was only partially submerged in the developer material. The Board held that the amount of submersion is immaterial to the structure of the mixer and thus the claim was properly rejected.).

**2115 Material or Article Worked Upon by Apparatus  
MATERIAL OR ARTICLE WORKED UPON DOES NOT LIMIT APPARATUS CLAIMS**

"Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." In re Young, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

In In re Young, a claim to a machine for making concrete beams included a limitation to the concrete reinforced members made by the machine as well as the structural elements of the machine itself. The court held that the inclusion of the article formed within the body of the claim did not, without more, make the claim patentable.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,007,981 issued to Kawasaki et al. (hereinafter, Kawasaki).**

Kawasaki teaches a multi-station apparatus that integrates both wet and dry processing stations in which the substrate being processed can be heated to a temperature greater than 200° C. The apparatus of Kawasaki includes a remote plasma chamber and a vacuum chamber with having gas supply inlets and a station for conducting wet processes such as rinsing. See figures 2 and 3, column 21 lines 11-50.

**Claims 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,135,608 issued to Okutani.**

Okutani teaches a multi-chamber apparatus that integrates both wet and dry processing modules in which the substrate being processed can be heated to a temperature greater than 200° C. The apparatus of Okutani includes a plasma chamber and a vacuum chamber having gas supply inlets and a chamber for conducting wet processes such as rinsing. See column 20, lines 28-68.

**Claims 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent 5,545,289 issued to Chen et al. (hereinafter, Chen).**

Chen teaches an integrated RIE metal etching apparatus (column 12, lines 1-2, 30-36). Chen does not use the word "integrated", nevertheless, the apparatus of Chen

contains an etching chamber (not pictured) which is connected to a separate passivation and stripping chamber (column 12, lines 3-8). The apparatus of Chen contains the necessary components to supply a mixture of an etching gas and an acid neutralizing gas into a vacuum chamber (column 13, lines 39-41). Chen demonstrates that the passivation chamber, which is separate from the etching chamber, is capable of forming a water-only plasma (column 17, Table VI, examples 43-45). Plasma generation zone is remote from the substrate supporting structure (see figure 2, column 5, line 66-column 6, line 8). Chen teaches that the apparatus is capable of controlling a substrate's temperature to be, for example, within the range of 150 °C to 400 °C.

**Claims 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 4,816,098 issued to Davis et al. (hereinafter, Davis).**

Davis teaches a multi-chamber cluster-type apparatus (see figures 5a and 5b, column 21, lines 3-9, column 23, lines 45-57). The process modules taught by Davis are vacuum chambers that include: gas supply lines; remote plasma generation means; substrate heating means; and substrate temperature controlling means. Davis shows that the temperature of the stripping chamber is capable of obtaining temperatures of greater than 200° C. The apparatus of Davis contains all the necessary components to meet the apparatus limitations of claims 16-17.

***Response to Arguments***

Applicant's arguments filed June 25, 2002 have been fully considered but they are not persuasive.

Applicant argues that the apparatus of Kawasaki et al. lacks a metal etch tool that is interfaceable with strip chamber and water rinse chamber. However, Kawasaki teaches etching metals (column 2, line 50), therefore, Kawasaki's apparatus does not lack a metal etch tool. Furthermore, Kawasaki teaches the interfacing of various processing chamber, including a resist stripping chamber and a water washing chamber (see figures 1 and 2 and column 4, lines 47-63).

Applicant argues that the apparatus of Okutani lacks a metal etch tool that is interfaceable with strip, vacuum and deionized water rinse chambers. However, Okutani teaches a fully interfaced apparatus as shown in figures 1 and 3-7. Okutani teaches that the apparatus comprises a metal etch tool (for example, column 14, lines 55-58) and resist striping, vacuum and water rinse chambers (column 18, lines 34-57).

Applicant argues that the apparatus of Chen lacks a metal etch tool that is interfaceable with strip and vacuum treatment chambers. Applicant refers to figure 2 of Chen as the most comprehensive depiction of Chen's vacuum chamber apparatus. Relying on figure 2, Applicant argues that Chen clearly lacks a metal etch tool that is interfaced with other process chambers. However, throughout Chen's specification each reference to the etch chamber is accompanied by "(not shown)". The written description clearly



establishes that Chen teaches an apparatus with interfaced process chambers. Chen's teachings pertain to metal etching, resist stripping and passivation (i.e. the claimed vacuum treatment chamber). See, for example, column 12, lines 1-10.

Applicant argues that the apparatus of Davis lacks a metal etch tool that is interfaceable with vacuum treatment chambers and deionized water rinse chamber. As noted in the above rejection, figure 5b of Davis shows an apparatus with multiple interfaced process chambers. At column 23, lines 37+, Davis teaches that these process chambers can be any one of the process modules disclosed in Davis. The process modules disclosed by Davis include a metal etch chamber, see for example, column 51 lines 1-2. Davis also discloses resist stripping using a remote plasma (column 63, lines 49-53). The process chambers of Davis are vacuum chambers to which process gasses are introduced thereby treating the enclosed substrate.

In response to applicant's argument that both Chen and Davis lack a metal etch tool that is interfaceable with a deionized water rinse chamber, it is noted that this features upon which applicant relies is not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

**Conclusion**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 703-306-9075. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Mills, can be reached on 703-308-1633.

The examiner's Right-Fax (direct to desktop) phone number is 703-872-9684. Alternatively, the general fax numbers for TC1700 are 703-872-9310 (non-after finals) and 703-872-9311(after-final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Allan Olsen, Ph.D.  
August 27, 2002

  
Examiner A.U. 1763